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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

MAIL DATE

DELIVERY MODE

11/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/530,231

Applicant(s)

YUN, YOUNG-NAM

Examiner

Thoi V. Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 ~~is~~/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 ~~is~~/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/23/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 15, 2007 has been entered.

Accordingly, claims 1-5 and 9 were amended. Claims 1-10 are currently pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. (Maeda, US 6,285,422 B1) in view of Epstein et al. (Epstein, US 6,801,276 B1).

Re claim 1, as shown in Figs. 1-4 (Fig. 2 is annotated), Maeda discloses a liquid crystal display device 100 comprising:

a light generating section 17 to generate first light L1;

a polarizing member 15/16 which transmits a first polarity of light in Y axis direction and absorbs a second polarity of light in X axis direction which is substantially orthogonal to the first polarity (col. 8, line 40 through col. 9, line 6), wherein the polarizing member includes a polarizing layer 16 and a light diffusing layer 15, and the polarizing member 15/16 is disposed adjacent to the light generating section 17 so as to generate a second and a third light L2, L3 by polarizing and diffusing the first light L1; and

a liquid crystal display panel 10 disposed on the polarizing member to display an image by using the third light L3 and including a first substrate 12, a second substrate 11 opposite to the first substrate and liquid crystal 13 interposed between the first and second substrates.

Re claim 4, as shown in Figs. 22 and 23 (Fig. 23 is annotated), Maeda discloses a liquid crystal display device 2200 comprising:

a light generating section 17 to generate first light L1;

a semi-transmissive film 220 disposed on the light generating section 17 which transmits only a portion of the first light L1 having a first polarity through openings 221 (col. 30, lines 34-43), and partially reflect a portion of a second light L2 which is incident to the semi-transmissive film 220 from a direction substantially opposite to the first light L1, wherein the reflected portion of the second light L2 has a polarity substantially orthogonal to the polarity of the transmitted first light L1 since the reflected portion of the second light L2 is still a linearly polarized light parallel to the drawing (double headed arrow in Fig. 23) (col. 30, lines 1-21);

a polarizing member 15/16 which includes a polarizing layer 16 and a light diffusing layer 15, wherein the polarizing member is disposed adjacent to the semi-transmissive film 220 so as to generate a fifth light L5 by polarizing and diffusing the transmitted portion of the first light L1 and to generate a fourth and a sixth light L4, L6 by polarizing and diffusing the reflected portion of the second light L2; and

a liquid crystal display panel 10 disposed on the polarizing member to display an image by selectively receiving the fifth light L5 or the sixth light L6 and including a first substrate 12, a second substrate 11 opposite to the first substrate and liquid crystal 13 interposed between the first and second substrates.

However, Maeda does not disclose that the polarizing layer and the light diffusing layer are integrally formed as recited in claims 1 and 4.

As shown in Fig. 2, Epstein discloses a polarizing member 2 (optical element) including a polarizing layer 12 and a light diffusing layer 28 integrally formed with the polarizer 12 (col. 4, lines 33-64).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display device of Maeda with the teaching of Epstein by employing a polarizing member including a polarizing layer and a light diffusing layer integrally formed with the polarizer in order to realize excellent forward scattering properties and exhibit low backscatter (col. 1, lines 9-14).

Re claim 2, as shown in Fig. 15, Epstein discloses the light diffusing layer 1208 positioned in opposition to the light generation section and the polarizing layer 1264 disposed on the light diffusing layer 1208 (col. 14, lines 30-38). Accordingly, with this

modified structure, it is obvious that the light diffusing layer will generate the second light by diffusing the first light and the polarizing layer will generate the third light by polarizing the second light.

Re claim 3, Maeda discloses that the polarizing layer 16 is positioned in opposition to the light generating section so as to generate the second light L2 by polarizing first light L1; and the light-diffusing layer 15 (light scattering member) is disposed on the polarizing layer 16 so as to generate the third light L3 by diffusing second light L2.

Re claim 5, as shown in Fig. 15, Epstein discloses the light diffusing layer 1208 positioned in opposition to the light generation section and the polarizing layer 1264 disposed on the light diffusing layer 1208 (col. 14, lines 30-38). Accordingly, with this modified structure, it is obvious that the light diffusing layer will generate the third light and generate the fourth light by diffusing the second light, and the polarizing layer will generate the fifth light by polarizing the third light and generate the sixth light by polarizing the fourth light.

Re claim 9, Maeda discloses that the polarizing layer 16 is positioned in opposition to the semi-transmissive film 220 so as to generate the third light L3 by polarizing the first light L1 and to generate the fourth light L4 by polarizing the second light L2; and

the light-diffusing layer 15 is disposed on the polarizing layer in opposition to the first substrate 12 so as to generate the fifth light L5 by diffusing the third light L3 and to generate the sixth light L6 by diffusing the fourth light L4.

4. Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. (Maeda, US 6,285,422 B1) in view of Epstein et al. (Epstein, US 6,801,276 B1) as applied to claims 1-5 and 9, and further in view of Iijima (US 6,906,767 B1).

The liquid crystal display device of Maeda as modified in view of Epstein above includes all that is recited in claim 6 except for the light-diffusing layer having a haze value above 20%.

Iijima discloses a liquid crystal display device comprising a light-diffusing layer having a haze value above 20% (col. 9, lines 28-50 and col. 12, lines 26-31).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid crystal display device of Maeda with the teaching of Iijima by employing a light-diffusing layer having a haze value above 20% in order to obtain a sufficiently diffused state, thereby reducing the parallax generation (col. 9, lines 54-57).

Re claim 10, as shown in Fig. 5 of Iijima, the second substrate 21 comprises a color filter 27 and a first electrode 24 and the first substrate 22 comprises a switching device and a second electrode 25 opposite to the first electrode 24 (col. 12, lines 1-15).

5. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. (Maeda, US 6,285,422 B1) in view of Epstein et al. (Epstein, US 6,801,276 B1) as applied to claims 1-5 and 9, and further in view of Kawamoto et al. (Kawamoto, US 6,809,782 B1).

Maeda in view of Epstein discloses a liquid crystal display device that is basically the same as that recited in claims 7 and 8 except the light-diffusing layer comprising

coating material coated on one surface of the polarizing layer and scattering material mixed with coating material.

As shown in Fig. 1, Kawamoto discloses a polarizing member comprising a polarizing layer 12 and a light-diffusing layer 11 coated on one surface of the polarizing layer 12, wherein the light-diffusing layer 11 comprising coating material and scattering material mixed with coating material and wherein the coating material comprises acryl-based resin and scattering material includes silica particles (col. 2, line 66 through col. 3, line 37 and col. 4, lines 25-49).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid crystal display device of Maeda with the teaching of Kawamoto by forming a light-diffusing layer comprising coating material coated on one surface of the polarizing layer and scattering material mixed with coating material in order to inhibit coloration in viewing from a slantwise direction and attain bright displays (col. 1, lines 6-10).

Response to Arguments

6. Applicant's arguments filed October 15, 2007 have been fully considered but they are not persuasive.

Applicant argued that Maeda does not teach, suggest, or disclose a polarizing member which transmits a first polarity of light and absorbs a second polarity of light which is substantially orthogonal to the first polarity, wherein the polarizing member includes a polarizing layer and a light diffusing layer integrally formed with the polarizing

layer, and the polarizing member is disposed adjacent to the light generating section 17 so as to generate a second and a third light by polarizing and diffusing the first light.

The Examiner disagrees with Applicant's remarks.

As shown in Figs. 2-4, Maeda discloses a polarizing member 15/16 which transmits a first polarity of light in Y axis direction and absorbs (reflects) a second polarity of light in X axis direction which is substantially orthogonal to the first polarity (col. 8, line 40 through col. 9, line 6), wherein the polarizing member includes a polarizing layer 16 and a light diffusing layer 15, and the polarizing member 15/16 is disposed adjacent to the light generating section 17 so as to generate a second and a third light L2, L3 by polarizing and diffusing the first light L1. And, Epstein is employed for teaching a polarizing member including a polarizing layer and a light diffusing layer integrally formed with the polarizer in order to realize excellent forward scattering properties and exhibit low backscatter (col. 1, lines 9-14). Thus, the diffuser and the polarizer are equivalent to those of the invention.

Applicant also argued that Maeda does not teach, suggest or disclose a semi-transmissive film disposed on the light generating section which transmits only a portion of the first light which has a first polarity and partially reflects a portion of a second light which is incident to the semi-transmissive film from a direction substantially opposite to the first light, wherein the reflected portion of the second light has a polarity substantially orthogonal to the polarity of the transmitted first light; and a polarizing member which includes a polarizing layer and a light-diffusing layer integrally formed with the polarizing layer, wherein the polarizing member is disposed adjacent to the semi-transmissive film

so as to generate a third and a fifth light by polarizing and diffusing the transmitted portion of the first light and to generate a fourth and a sixth light by polarizing and diffusing the reflected portion of the second light as claimed in independent claim 4 of the present invention.

The Examiner again disagrees with Applicant's remarks.

As shown in Figs. 22 and 23, Maeda discloses a semi-transmissive film 220 disposed on the light generating section 17 which transmits only a portion of the first light L1 having a first polarity through openings 221 (col. 30, lines 34-43), and partially reflect a portion of a second light L2 which is incident to the semi-transmissive film 220 from a direction substantially opposite to the first light L1, wherein the reflected portion of the second light L2 has a polarity substantially orthogonal to the polarity of the transmitted first light L1 since the reflected portion of the second light L2 is still a linearly polarized light parallel to the drawing (double headed arrow in Fig. 23) (col. 30, lines 1-21); and a polarizing member 15/16 which includes a polarizing layer 16 and a light diffusing layer 15, wherein the polarizing member is disposed adjacent to the semi-transmissive film 220 so as to generate a fifth light L5 by polarizing and diffusing the transmitted portion of the first light L1 and to generate a fourth and a sixth light L4, L6 by polarizing and diffusing the reflected portion of the second light L2.

Since the reflecting plate 220 has openings 221, the reflecting plate only transmits a portion of the first light having a first polarity through the openings 221 and reflects all other portions of the first light. Moreover, the reflected portion of the second light L2 has a polarity substantially orthogonal to the polarity of the transmitted first light

L1 since the reflected portion of the second light L2 is still a linearly polarized light parallel to the drawing (double headed arrow in Fig. 23). Thus, the reflecting plate 220 of Maeda is indeed equivalent to the semi-transmissive film as claimed in independent claim 4.

Finally, Kawamoto is employed for teaching a light-diffusing layer comprising coating material coated on one surface of the polarizing layer and scattering material mixed with coating material in order to inhibit coloration in viewing from a slantwise direction and attain bright displays.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms, can be reached at (571) 272-1787.

Thoi V. Duong – Primary Examiner

August 07, 2007

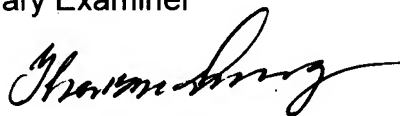


FIG. 2

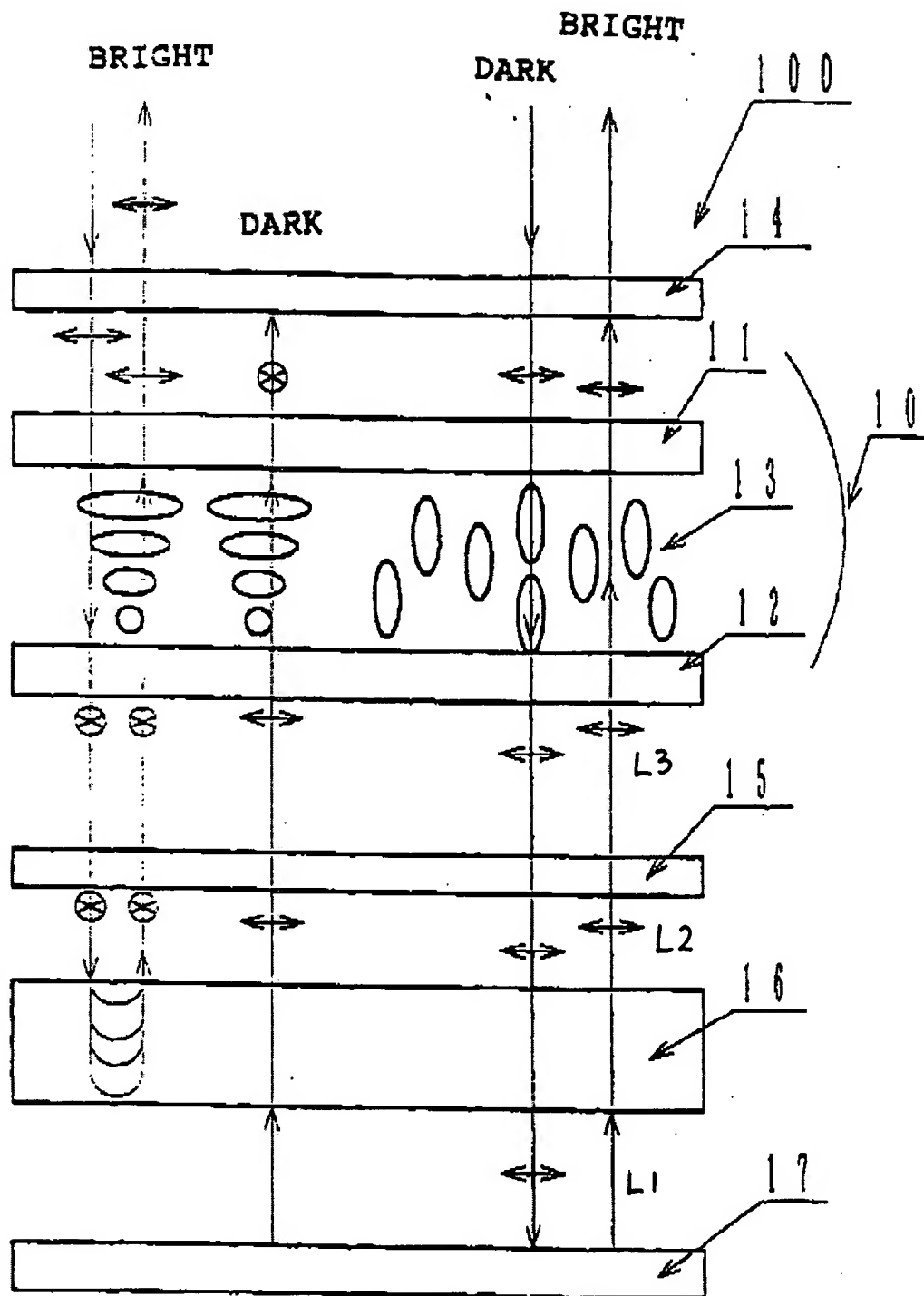


FIG. 23

